

REMARKS

Please reconsider the application in view of the foregoing amendments and the following remarks.

Status of Claims

Claims 1-13 are pending in the present application. Claims 1-10, 12 and 13 are herein amended. No new matter has been presented.

Information Disclosure Statement

Applicants note with appreciation the Examiners thorough consideration of the references cited in the Information Disclosure Statement (IDS) submitted on June 15, 2005.

Rejections under 35 U.S.C. §112

Claims 1-6 and 13 were rejected under 35 U.S.C. 112, second paragraph.

Claims have been amended to overcome the rejection.

Rejections under 35 U.S.C. §103

Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Asano (U.S. Patent No. 7,031,917) in view of Yamada et al. (Yamada et al., "Robust speech recognition with speaker localization by a microphone array," Spoken Language, 1996, ICSLP 96, Proceedings, Fourth International Conference on, vol. 3, no., pp. 1317-1320 vol. 3, 3-6 Oct 1996).

Asano (US. Patent No. 7,031,917) is NOT a valid Prior Art.

Asano's patent is not prior art to the present application because (1) Asano's US application never accrued a 102(e) date because it never published in English as an I.A (see PCT IASF, section V on PAIR); and (2) Asano's earliest prior art date (102 date) is its PCT publication date of May 1, 2003 which is after the effective US filing date February 12, 2003 (PCT filing date) of the present application.

Therefore, Applicants respectfully submit that Asano is not prior art to the invention disclosed in the present application. Accordingly, withdrawal of the rejection is respectfully requested.

Also, Asano does not disclose the elements and features of the claimed invention as follows:

Claim Rejection 35 USC § 103

Features of the claimed invention

The claimed invention is characterized by speech recognition of a plurality of sound sources based on the following features:

Feature 1:

"wherein in order to respond to cases where a plurality of speakers speak to the robot from different directions with respect to a robot's front direction as a base, the acoustic models are provided with respect to each speaker, and each direction"

Feature 2:

"wherein the speech recognition engine uses each of said acoustic models separately for one sound signal separated by sound source separation, and executes said speech recognition process in parallel."

These features enable high quality speech recognition.

As to Asano (US. Patent No. 7,031,917)

Asano discloses speech recognition based on acoustic model according to distance to a speaker (see column 15, line 63 to column 16, line 19). In Asano, a plurality of acoustic model database according to distance to a microphone is provided (see Fig. 9). However, Asano does not disclose a speech recognition processes for a plurality of sound sources. Further, Asano does not provide an acoustic model according to each speaker, neither to each angle of the microphone.

As to Yamada et al. ("Robust speech recognition with speaker localization by a microphone array" Spoken Language, 1996)

Yamada et al. discloses use of two sound sources. Specifically, as shown on the left section of page 1319, "the speaker" and "the Gaussian noise source" are disclosed as sound source. However, as appreciated from the "3.3 Speech Recognition Results" described on the same page, it is for "the speaker localization", not for localization of "noise source" nor speech recognition. Yamada et al. neither provides an acoustic model according to each speaker nor that to each direction of a speaker.

Since these documents do not disclose nor suggest the features 1 and 2 of the claimed invention, it would not have been obvious for one of skill in the art at the time of the invention to use the features taught by Yamada et al. with the system of Asano in order to attain higher speech recognition.

Conclusion

The Claims have been shown to be allowable over the prior art. Applicants believe that this paper is responsive to each and every ground of rejection cited in the Office Action dated January 20, 2011, and respectfully request favorable action in this application. The Examiner is invited to telephone the undersigned, applicants' attorney of record, to facilitate advancement of the present application.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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